

Draft Environmental Assessment

Nooksack River – Sande-Williams Levee Rehabilitation of Flood Control Works Whatcom County, Washington



July, 2005



**US Army Corps
of Engineers®**
Seattle District

**Nooksack River Sande-Williams Levee
Rehabilitation of Flood Control Works
Final Environmental Assessment
July 2004**

Responsible Agency: The responsible agency for rehabilitation of flood control works is the U.S. Army Corps of Engineers, Seattle District (Corps).

Abstract:

This Environmental Assessment (EA) evaluates the environmental effects of the proposed repair and reconstruction of Sande-Williams levee, located on the Nooksack River near Deming, Washington. This levee is on the right bank at approximately River Mile 33.0, approximately 700 yards off Williams Road, to the south-southwest of Deming Road. The levee protects 320 acres of agricultural land, residential properties, and associated public infrastructure, such as roads. The Corps is proposing the following project under the authority of Public Law 84-99 (33 USCA 701n). The proposed Corps action in 2005 consists of two (2) 250 linear foot repairs of existing toe and slope, which were damaged in a 24-26 November 2004 flood event. Repairs will consist of three-foot thick class IV riprap placement on the slope to restore the original slope and level of protection; a weighted 6-foot by 12-foot toe will be constructed to replace the toe lost in the 2004 flood.

The Nooksack River rose above the zero damage flood stage between 24 and 26 November 2004, resulting in severe damage to two (2) 250 linear-foot sections of levee. This damage is downstream but immediately adjacent to a levee repair of a 100-foot breach performed by the Corps at the request of Whatcom County in 2004. The Corps has determined that the levee is in need of permanent repair and is proposing to repair two 250 linear-foot sections of the levee. The entire levee including the back, top, and riverward slope is absent of any significant vegetation in the repaired area. Landward of the levee the vegetation consists of mature mixed species forest.

The proposed project will not constitute a major federal action significantly affecting the quality of the human environment.

This document is also available online at:

<http://www.nws.usace.army.mil/ers/envirdocs.html>

Please send questions and requests for additional information to:

Mr. Philip L. Hoffman
Environmental Resources Section
U.S. Army Corps of Engineers
P.O. Box 3755
Seattle, Washington 98124-3755
Philip.L.Hoffman@usace.army.mil
206-764-6577

TABLE OF CONTENTS

1. INTRODUCTION.....	1
1.1 LOCATION AND SETTING.....	1
1.2 BACKGROUND	2
1.3 PURPOSE OF AND NEED FOR THE PROPOSED ACTION	3
1.4 AUTHORITY	3
1.5 ACTION AREA.....	3
2. DESCRIPTION OF THE ALTERNATIVES	3
2.1 PREFERRED ALTERNATIVE.....	3
2.2 OTHER ALTERNATIVES ANALYZED	4
2.2.1 <i>No Federal Action</i>	4
2.2.1.1 <i>Effects of No Federal Action</i>	4
2.2.2 <i>Non-Structural Alternative</i>	4
2.2.4 <i>Repair-the-Scour Alternative</i>	5
3. AFFECTED ENVIRONMENT.....	5
3.1 GENERAL	5
3.2 HYDROLOGY, SOILS AND TOPOGRAPHY	5
3.3 VEGETATION.....	5
3.4 FISH AND WILDLIFE.....	6
3.5 THREATENED AND ENDANGERED SPECIES.....	6
3.6 CULTURAL RESOURCES	8
3.7 WATER QUALITY	8
3.8 AIR QUALITY AND NOISE.....	9
3.9 UTILITIES AND PUBLIC SERVICES	9
3.10 LAND USE.....	9
3.11 RECREATION.....	9
3.12 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE	9
3.13 AESTHETICS.....	9
4. EFFECTS OF THE ALTERNATIVES.....	10
4.1 GENERAL	10
4.1.1 <i>Proposed Alternative</i>	10
4.1.2 <i>No-Action Alternative</i>	10
4.2 HYDROLOGY, SOILS AND TOPOGRAPHY	10
4.2.1 <i>Proposed Alternative</i>	10
4.2.2 <i>No-Action Alternative</i>	10
4.3 VEGETATION.....	10
4.3.1 <i>Proposed Alternative</i>	10
4.3.2 <i>No-Action Alternative</i>	11
4.4 FISH AND WILDLIFE	11
4.4.1 <i>Proposed Alternative</i>	11
4.4.2 <i>No-Action Alternative</i>	11
4.5 THREATENED AND ENDANGERED SPECIES.....	11
4.5.1 <i>Proposed Alternative</i>	11
4.5.2 <i>No-Action</i>	12
4.6 CULTURAL RESOURCES	12
4.6.1 <i>Proposed Alternative</i>	12
4.6.2 <i>No-Action Alternative</i>	Error! Bookmark not defined.
4.7 WATER QUALITY	13
4.7.1 <i>Proposed Alternative</i>	13
4.7.2 <i>No-Action Alternative</i>	13
4.8 AIR QUALITY AND NOISE	13

4.8.1 Proposed Alternative.....	13
4.8.2 No-Action Alternative.....	14
4.9 UTILITIES AND PUBLIC SERVICES	14
4.9.1 Proposed Alternative.....	14
4.9.2 No-Action Alternative.....	14
4.10 LAND USE.....	14
4.10.1 Proposed Alternative.....	14
4.10.2 No-Action Alternative.....	14
4.11 RECREATION.....	14
4.11.1 Proposed Alternative.....	14
4.11.2 No-Action Alternative.....	14
4.12 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE	15
4.12.1 Proposed Alternative.....	15
4.12.2 No-Action Alternative.....	15
4.13 AESTHETICS.....	15
4.13.1 Proposed Alternative.....	15
4.13.2 No-Action Proposed Alternative Aesthetics	15
5. UNAVOIDABLE ADVERSE EFFECTS	15
6. COORDINATION.....	15
7. CUMULATIVE EFFECTS.....	16
8. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES.....	16
9. ENVIRONMENTAL COMPLIANCE	16
10. CONCLUSION	18
11. REFERENCES	19
13. APPENDICES.....	20
<u>APPENDIX A</u>	1
REQUESTS FOR CORPS ASSISTANCE.....	1
<u>APPENDIX B</u>	1
ESA CONSULTATION DOCUMENT	1
<u>APPENDIX C</u>	1
PROPOSED PROJECT DRAWING	1
<u>APPENDIX E</u>	1
DRAFT FONSI.....	1

1. INTRODUCTION

This Environmental Assessment (EA) evaluates the environmental effects of the proposed repair and reconstruction of Sande-Williams Levee located on the Nooksack River near Deming, Washington. This levee is on the right bank (looking downstream) at approximately River Mile 33.0 approximately 700 yards off Williams Road, to the south-southwest of Deming Road. The area is within the historic floodplain of the Nooksack River, and contains several small farms, single-family residences, a log homebuilder and various small commercial businesses. An adjacent section of the levee was previously repaired in June 2004 following a 100-foot breach in the levee, which allowed floodwaters to enter adjacent property. The proposed Corps action in 2005 consists of two (2) 250 linear foot repairs of existing toe and slope, which were damaged in a 24-26 November 2004 flood event. Repairs will consist of a three-foot thick class IV riprap placement on the slope to restore the original slope and level of protection; a weighted 6-foot by 12-foot toe will be constructed to replace the toe lost in the 2004 flood. The total length of the proposed levee rehabilitation project will be approximately 500 feet in two sections.

The proposed work is not expected to significantly affect the quality of the human environment because the damaged section of shoreline will be returned to the pre-flood condition as built in place.

1.1 Location and Setting

The project is located on the right bank of the Nooksack River at approximately RM 33.0, 700 yards off Williams Road, to the south-southwest of Deming Road, near Deming, Washington, within Whatcom County, Washington at Range 4 East, Township 39 North, Sections 26 and 35. A location map can be found in Figure 1.

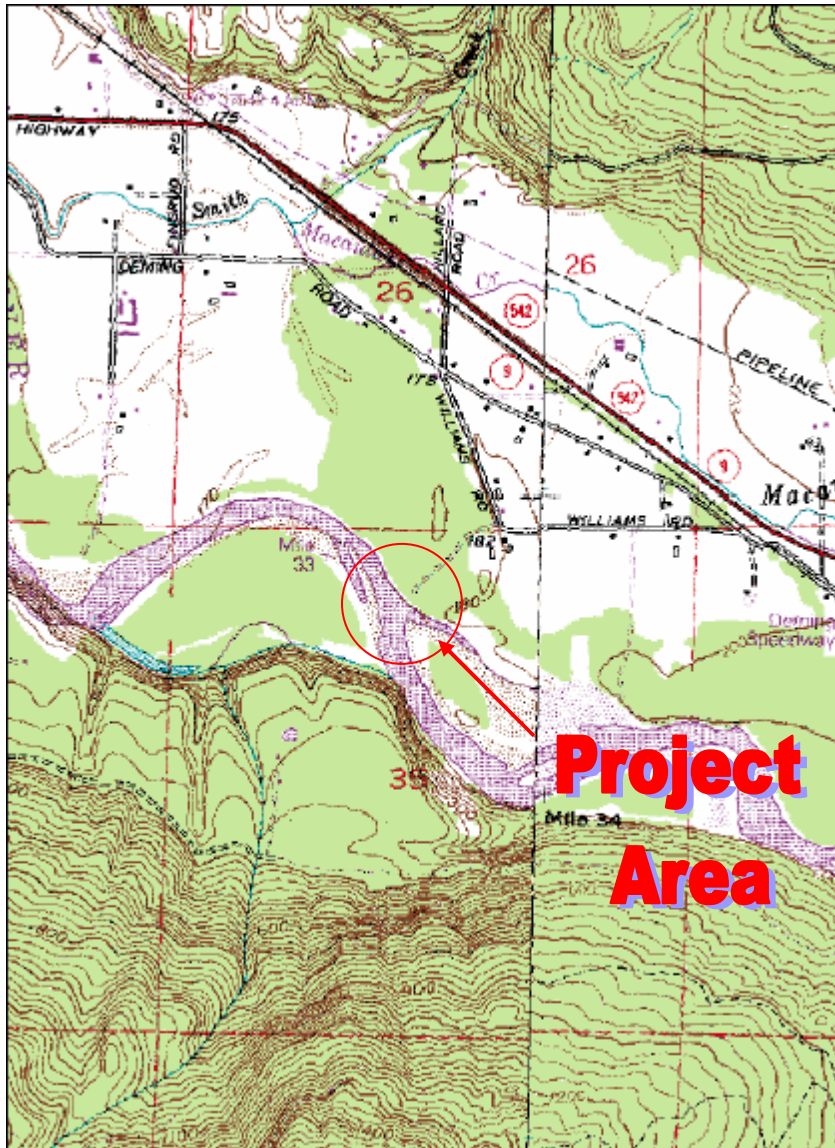


Figure 1. Project Location

1.2 Background

The levee was originally constructed in the early 1900's by local farmers to protect crops, roads, and structures. Over the years, separate segments became interconnected to form a contiguous levee segment. The estimated completion of a contiguous segment is prior to 1936 when the Corps performed levee upgrades using Works Progress Administration (WPA) funding. After the WPA upgrades, Corps involvement has been limited to flood fights and levee rehabilitation.

The County performs annual maintenance including the removal of blackberries and thinning or removal of trees that would jeopardize levee integrity.

From November 24 through November 26 2004, the Nooksack River at Deming, Washington rose above 7000cfs discharge according to the USGS gauging station, located downstream of the project location. The flood even scoured away a gravel bar island in the river channel adjacent to the now-damaged section of levee. During this scouring event, the thalweg of the river

moved along side the levee. During this flood event the levee sustained significant damage by erosion at two locations, approximately 250 feet each, along the river right or outside bend of the Nooksack in this location. The armor rock on the face was lost, and portions of the levee toe were also scoured away. This damage leaves the levee locations vulnerable to failure without repair.

In December 2004, Whatcom County Public Works Department requested assistance under the PL84-99 Program in implementing a repair project at this location (Appendix A). The Corps has determined that the levee is in need of permanent repair and is proposing to repair two 250-foot sections of the levee.

1.3 Purpose of and Need for the Proposed Action

The purpose of this project is to provide protection to the community and infrastructure from flood damage. This section of the levee sustained significant damage by erosion during a flood event in November 2004 and is in need of permanent repair. There is a high potential that during the upcoming flood season around October, the river would overflow the levee again, posing a major threat to community if no action is taken to contain the floodwaters.

1.4 Authority

The Sande-Williams Levee Rehabilitation is authorized by Public Law 84-99 (33 USCA 701n). Corps rehabilitation and restoration work under this authority is limited to flood control works damaged or destroyed by flood. The rehabilitated structure will normally be designed to provide the same degree of protection as the original structure. This project has been authorized as having *emergency* status as stated under the PL 84-99 regulations. The Corps has determined that if the levee is not repaired by the next flood event, an *imminent threat* to human life and of loss of private and/or public property exists.

1.5 Action Area

The project area includes the 500 feet long and 35 feet wide right bank of the Nooksack River. The action area for the project extends from the project site on the right bank of the Nooksack River, downstream approximately 500 feet for aquatic species and includes a 3/4-mile radius from the project area for terrestrial species. Staging will be accomplished at the work site, and access will be obtained using existing levee access roads from existing paved roads.

2. DESCRIPTION OF THE ALTERNATIVES

2.1 Preferred Alternative

The Corps proposes to permanently repair the section of the levee. The proposed Corps action in 2005 consists of two (2) 250 linear foot repairs of existing toe and slope, which were damaged in a 24-26 November 2004 flood event. Repairs will consist of three-foot thick class IV riprap

placement on the slope to restore the original slope and level of protection; a weighted 6-foot by 12-foot toe will be constructed to replace the toe lost in the 2004 flood. The project is located on the right bank of the Nooksack River between RM 32.5 and RM 33.9, 700 yards off Williams Road, to the south-southwest of Deming Road, near Deming, Whatcom County, Washington at Range 4 East, Township 39 North, Section 35. The project also includes adding willow plantings. The project will be constructed between July 15- August 15.

A project drawing is located in Appendix C. Access to the site will not require the construction of a road, as a road currently exists.

2.2 Other Alternatives Analyzed

In order for any alternative to be acceptable for consideration it must meet certain objectives. The alternative must afford flood protection similar to the rest of the levee segment, it must be economically justified, it should be environmentally acceptable, and it should minimize costs for both the sponsor and the Federal government. Several other alternative actions were considered before the recommended alternative was selected. These alternatives include:

- No Federal Action (the No-Action Alternative),
- The Non-Structural Alternative,
- The Set- Back Alternative,
- The Repair-the-Scour Alternative

2.2.1 No Federal Action

The No-Action alternative would leave the levee in its current damaged condition. This alternative was discarded because it does not meet project objectives. Specifically, the levee is so damaged that it could easily be breached by even a small event, thus posing an imminent threat to life and property.

2.2.1.1 *Effects of No Federal Action.*

With no Corps assistance, the bank erosion would continue, and could eventually reach Williams Road and Deming road. Significant damage to commercial and residential structures, public utility infrastructure, and roads would occur.

2.2.2 Non-Structural Alternative

The Non-Structural alternative would buy-out the existing residential and agricultural property and would also relocate any necessary public infrastructure. This alternative was not selected because the costs were deemed significantly higher when compared to the costs for selected alternative, and does not meet the acceptability criteria.

2.2.3 The Setback Alternative

The setback alternative would construct a new levee behind the current alignment. This levee would be constructed to match the pre-flood level of protection of the original levee (i.e. same levee height). This alternative was not selected because the costs were deemed significantly higher when compared to the costs for the selected alternative.

2.2.4 Repair-the-Scour Alternative

The Repair-the-Scour Alternative would repair the erosion and return the levee to its pre-flood condition. Matching the pre-flood alignment and design of the levee would be extremely costly because it would require filling the scour hole, and would require substantial in-water work, which is much less desirable environmentally.

3. AFFECTED ENVIRONMENT

3.1 General

In the project area the Nooksack River is a confined, single channel, low gradient system. The river provides spawning and rearing for all salmon species utilizing the upper mainstem Nooksack. These species include Chinook (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), chum (*O. keta*), pink (*O. gorbuscha*), sockeye (*O. nerka*), steelhead (*O. mykiss*) and large numbers of coho (*O. kisutch*). Juvenile rearing could occur through the reach. The riparian zone adjacent to the levees is well developed with medium age cottonwoods, alders, and Douglas fir, however the existing levee is essentially void of any vegetation. The riparian vegetation serves as habitat for a variety of raptors, woodpeckers, passerines and water-oriented mammals.

The following threatened species are expected to be found in the project area:

Puget Sound Chinook salmon (2 essential stocks)
Bull trout
Bald eagle

It is also anticipated that marbled murrelet could transit the area going to nesting areas in the upper watershed, or feeding areas in Puget Sound.

3.2 Hydrology, Soils and Topography

Currently the river flows directly into this section of the levee due to a sharp bend in the river. This abrupt change in the river channel results in rapid water velocity changes and the high potential for scour to occur in this section of the levee. The November 2004 flood event scoured away a gravel bar island that had accreted adjacent to the project site. The river thalweg has also shifted, and is now aligned next to the levee in the damaged area.

Topography of the project site is flat river floodplain, bordered by high ridge features on both sides. The soils are Pilchuck loamy fine sand (SCS, 1987). Average precipitation is 50 inches; average air temperature is 49 degrees F. The soils are well drained, and usually deposited on river alluvium. Erosion can be severe when exposed to flooding, and permeability is rapid (SCS, 1987).

3.3 Vegetation

The project site is located in a coastal upland agricultural area. Vegetation at and near the vicinity of the project site is limited to that which occurs near the river. These include:

- cottonwood (*Populus angustifolia*)
- red-osier dogwood (*Cornus sericea*),
- Nootka rose (*Rosa nutkana*),
- salmonberry (*Rubus spectabilis*),
- snowberry (*Magnoliopsida dilleniida*),
- red alder (*Alnus rubra*),
- Alaskan cedar (*Chamaecyparis nootkatensis*),
- Himalayan blackberry (*Rubus discolor*),
- evergreen blackberry (*Rubus laciniatus*),
- Douglas fir (*Pseudotsuga menziesii*)
- willow (*Salix spp.*) and
- a variety of native and non-native grasses.

The most prominent species at the project site are Douglas fir, Himalayan blackberry, cottonwood, and willow. Corps personnel conducted a wetland assessment on June 7, 2005. The Sande-Williams site contained an intact upland forested community along the access alignments. Soil investigation concluded that no hydric soils are present in the project areas listed above. Soil matrix chroma's ranged from 10YR 3/2, 10YR 2/2 and 10YR 4/2 without redoximorphic features (mottles).

3.4 Fish and Wildlife

The Nooksack River supports several species of salmon and trout. Trout species occasionally present include bull trout, Dolly Varden, steelhead and cutthroat trout. The salmon species are Chinook (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), chum (*O. keta*), pink (*O. gorbuscha*), and sockeye (*O. nerka*).

The agricultural area surrounding the project site along the Nooksack River is frequented by a variety of wildlife species. Mammals include raccoon (*Procyon lotor*), Douglas squirrel (*Tamiasciurus douglasi*), little brown myotis (*Myotis lucifugus*), mink (*Carnivora mustelidae*) and Columbia black-tailed deer (*Odocoileus hemionus*). Bird species using or transiting the area could include bald eagles (*Haliaeetus leucocephalus*), marbled murrelets (*Brachyramphus marmoratus marmoratus*), and chestnut-backed chickadee (*Parus rufescens*).

3.5 Threatened and Endangered Species

In accordance with Section 7(a)(2) of the Endangered Species Act of 1973 (ESA), as amended, federally funded, constructed, permitted, or licensed projects must take into consideration impacts to federally listed and proposed threatened or endangered species. Three species listed as either threatened or endangered are potentially found in the area of the project, and are listed in Table 3-1.

Table 3-1. Endangered Species in the Project Vicinity

Scientific Name	Common Name	Status
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Threatened
<i>Oncorhynchus tshawytscha</i>	Puget Sound Chinook Salmon	Threatened
<i>Salvelinus confluentus</i>	Bull Trout	Threatened
<i>Brachyramphus marmoratus marmoratus</i>	Marbled Murrelet	Threatened

Information on known occurrences of candidate and threatened species in the project vicinity, and the impacts of the proposed projects on these species are addressed in Appendix B, Nooksack River Sande-Williams Levee Repair ESA documentation, dated May 2004.

Bald eagle is listed as threatened in Washington pursuant to the ESA and can be found in coastal areas. The project area is approximately 3/4 mile away from a nest and the nest is not visible from the project area. Nesting territory extends along much of the Nooksack River, as far north as Pioneer Park.

Marbled murrelet is listed as threatened and is found in coastal old-growth forest areas of Washington. Marbled murrelets do not nest or feed in the project area. The project site lacks old-growth forest and does not contain suitable marbled murrelet habitat.

Bull trout and Dolly Varden have been found to co-exist in streams in this region. Because these two species are closely related and have similar biological characteristics, the WDFW manages bull trout and Dolly Varden in the Nooksack together as "native char." Bull trout and Dolly Varden are very difficult to distinguish based on physical features and share similar life history traits and habitat requirements. Dolly Varden were not listed as a threatened species in the Coastal/Puget Sound Distinct Population segment when the USFWS listed bull trout in November 1999. However, the USFWS indicated on January 9, 2001 that Dolly Varden are being considered for listing as threatened due to their similarity of appearance to bull trout.

Bull trout was designated on June 10, 1998 as threatened in the contiguous U.S.A. (lower 48 states). Anadromous and resident bull trout spawn in the upper forks of the Nooksack River. Existing habitat suitability for char along this length of shoreline is low as the water velocities are quite high and this reach would likely be used only as a transportation corridor in the immediate project area.

Puget Sound Chinook salmon, an anadromous fish run in the Nooksack River area, is listed as threatened under the ESA. Chinook salmon in the Nooksack Basin are considered part of the Puget Sound Chinook salmon Evolutionarily Significant Unit (ESU) that was listed as threatened in March 1999. Three Chinook stocks have been identified in the Nooksack River basin; the North Fork spring-run, the South Fork spring-run and the Samish/Mainstem fall-run. The two spring-runs are distinct wild stocks of native origin while the Samish/Mainstem fall-run is a non-native introduced hatchery stock from the Green River.

Spring-run Chinook generally enter the Nooksack River between late March and early August, migrate rapidly upstream to the forks and hold there until July through early August, and spawn generally from August through October (Williams et al. 1975). Fall-run Chinook enter the river beginning in mid July and migrate upriver to the spawning grounds or hatchery of origin through

end the of September, and generally spawn from mid September through mid November (Williams et al. 1975). Juvenile salmonid smolts and fry Chinook migrate downstream through the project reach from mid March through mid July (Williams et al. 1975). Available feeding and predator avoidance habitat in the lower river, during downstream migration to the estuary and marine environment, is usually associated with slow velocities along the shoreline or around woody debris and along shallow margin habitats of cobble and gravel bars. Given the general lack of rearing habitat, high water velocities, and their migratory behavior, residence time of out-migrating Chinook fry in the project reach is likely less than a few hours. Existing habitat suitability for both juvenile and adult Chinook salmon along this length of shoreline is low as the water velocities are very high and this reach would likely be used only as a transportation corridor in the immediate project area.

3.6 Cultural Resources

Swanton (1952:430) places the stretch of the river containing the project area within the traditional territory of the Nooksack Tribe, who belonged to the coastal division of the Salishan linguistic family. Ruby and Brown (1992:152-153) provide information that the name Nooksack was originally the name of one of the tribe's villages and is also a corruption of one of the tribe's bands. During the middle of the nineteenth century the tribe was settled in three main villages: one of the villages was located near present-day Deming, one near Goshen, and the third near Everson (Ruby and Brown 1992:153). Suttles provides information that most of the 20 or more Nooksack villages were located in the level valley below the confluence of the north and south forks of the river (1990:456). A map compiled by Hollenbeck (1987:45, Map 2) shows a trail and the settlement of "Que-que-wh-ose" on the right bank of the river north of the Sande-Williams project area near Everson.

The 1874 General Land Office (GLO) map for T. 39 N., R. 4 E., W.M., shows that the area to be repaired consisted of the main Nooksack River channel and a small island at that time. The same GLO map shows the "T. Williams" homestead approximately one fourth of a mile north of the repair site and a wagon road extending NW/SE inland of the farm. The homestead lies adjacent to the east side of the western access road but a view of the road from the farmstead appears to be screened by trees. There are undated buildings still standing at the old homestead site location, but no evidence was found that they have ever been inventoried. The same GLO map shows the name "Carney Is" for an island in the river north of the project area where an agricultural field is depicted.

REFERENCES CITED

3.7 Water Quality

Warm water temperatures are a problem in the mainstem Nooksack River. Water temperatures in the Nooksack River near North Cedarville (RM 30.9) were in the "poor" category (warmer than 16 °C) for 54% of the samples in 1996 and 1997 (USGS 2001). Conditions worsen downstream near Everson (RM 23.2) where 65% of the samples are warmer than 16 °C and the peak temperature was 19.0 °C. Near the mouth (RM 3.4), 60% of the samples were warmer than 16 °C in July and August of 1996 and 1997 (USGS 2001). The entire length of the mainstem Nooksack River has a severely degraded riparian zone, which contributes to water quality

exceedances. Shade levels were remarkably poor with no mainstem reaches achieving more than 40% of target shade levels, and most reaches had percent canopy cover in the 0 to 20% range (Coe 2001). Other causes include the surrounding agriculture, residential, and urban land use and the increased sedimentation from upstream sources. All of these water quality problems pose serious impacts to salmonids and result in a “poor” water quality rating for the mainstem Nooksack River.

3.8 Air Quality and Noise

Air quality in the Nooksack Basin is generally good. However, urban areas experience moderately degraded air quality during certain times of the year. Motor vehicles are the largest source of air pollutants in Whatcom County, although wood-burning stoves also contribute. Particulates, sulfur dioxide, ozone, and carbon monoxide are the pollutants of concern. High concentrations of these pollutants generally occur during the dry, late summer months when minimal wind conditions persist for long periods of time or during mid-winter thermal inversions.

This rural area is typically quiet. Typical existing noise consists of those generated by farm machinery, trucks, automobiles, and other internal combustion engines.

3.9 Utilities and Public Services

The levee protects 320 acres of agricultural land, residential properties, and associated public infrastructure, such as roads.

3.10 Land Use

Land use in the project area is primarily rural residential and agricultural. There are scattered homes and farms in the surrounding area.

3.11 Recreation

Recreational uses of the Nooksack River at the project site are seasonal and moderate. They include, but are not limited to, sightseeing, wildlife observation, camping, photography, hiking, fishing and boating.

3.12 Hazardous, Toxic, and Radioactive Waste

There are no known sites at the project locations that have any hazardous, toxic, or radioactive waste.

3.13 Aesthetics

Along the Nooksack River, the landscape elements of landform, vegetation, water, color, and related factors have been impaired by the levees and agricultural use of adjacent land. Scenery and visual attractions are limited to the river corridor over this reach of the river.

4. EFFECTS OF THE ALTERNATIVES

4.1 General

4.1.1 Proposed Alternative

There will be short-term impacts from rehabilitation of the levee. The primary impacts will be minor temporary increases in turbidity at the construction site and a temporary increase in noise due to construction equipment. The proposed project will require in water work, to repair the damaged toe sections. Because the work will be accomplished during the established work window (June 15 – August 15), the potential disruption of salmonid movement in the area will be minimized. If present, adult and juvenile salmonids may be temporarily displaced from the project location, but will have the option to migrate along the opposite riverbank.

Due to the timing of construction (July 15-August 15) and design of the levee, no long-term impacts to the environment are anticipated. Any effects to fish and wildlife will be temporary and primarily occur during construction. Additional willow plantings added to the site may increase some fish habitat values. Overall effects, both adverse and favorable, are considered insignificant.

4.1.2 No-Action Alternative

The No-Action alternative would not create any noise, it would not disrupt salmonid movement, it would not result in willows being planted and it would not provide the desired flood protection.

4.2 Hydrology, Soils and Topography

4.2.1 Proposed Alternative

The proposed action will have no effect on hydrology, soils and topography. The levee will be restored to its previous shape, slope and toe configuration. The river's thalweg is currently running against the damaged levee section, thus repair is necessary for the levee to function against the increased hydraulic forces currently placed against it.

4.2.2 No-Action Alternative

The No-Action alternative may result in increased damage to the existing levee. Further loss of armor rock and/or armored/buried toe rock may lead to the levee being compromised or failing in subsequent floods. This could result in uncontrolled interaction between the river and adjacent properties.

4.3 Vegetation

4.3.1 Proposed Alternative

Currently very little vegetation is present on the riverward slope of the levee and the Corps anticipates that a few small willows will constitute the total vegetation to be removed from the riverward slope.

The riverward slope of the levee will incorporate willow cuttings into the design. Overall project effects to vegetation will be insignificant as the existing vegetation is very limited. In addition, our replanting efforts will increase vegetation in the project area.

4.3.2 No-Action Alternative

The No-Action alternative would result in the levee being temporarily devoid of vegetation and would likely result in the project area being populated with Himalayan blackberry.

4.4 Fish and Wildlife

4.4.1 Proposed Alternative

Effects to fish and wildlife, if any, will be temporary and occur primarily during construction. The addition of the willow plantings that will be added to the site may increase some fish habitat values. Overall effects, both adverse and favorable, are considered insignificant.

4.4.2 No-Action Alternative

The No-Action alternative would have no effect to fish or wildlife species. The current existing armor rock would continue to be in place, and may move or fail as a result of subsequent floods. As discussed for vegetation, above, no riparian plantings would be carried out, and no new riparian vegetation would be added to the project site.

4.5 Threatened and Endangered Species

4.5.1 Proposed Alternative

Bald Eagle

The project impacts are not a concern to nesting behavior due to construction timing. WDFW eagle experts have indicated that the young in this nest have typically fledged by the middle of July. No construction activity restrictions are identified in the ESA documentation due to no known bald eagle ground feeding or perch areas being within close proximity to the project area. The ESA document addressed the expected effect of the project on bald eagles and made a “**No affect**” determination.

Marbled murrelet

The project would not occur during marbled murrelet nesting season and would not have a detrimental effect on the species. The ESA document addressed the expected effect of the project on marbled murrelet and made a “**No affect**” determination.

Bull trout and Dolly Varden

The Corps will not remove the few large rocks that remain in the channel from the previous levee, which may provide some habitat that could be utilized by native char. It is unlikely that bull trout are present in this portion of the river, as the known spawning areas in the Nooksack system are well upstream. In addition, the ESA document addressed the expected effect of the project on bull trout and Dolly Varden and made a “**May affect, not likely to adversely affect**” determination.

Puget Sound Chinook salmon

The procedure to repair the levee was designed to avoid or minimize potential "take" during construction. Although limited rearing may occur in the project reach on the opposite bank, the habitat immediately adjacent to the project site is generally not suitable for Chinook rearing and functions primarily as a transportation corridor to and from saltwater. The project is scheduled during the in-water construction period to avoid periods of greatest Chinook vulnerability and highest expected use. The ESA document addressed the expected effect of the project on Chinook salmon and made a “**May affect, not likely to adversely affect**” determination.

4.5.2 No-Action

As there would be no change to the existing condition from No-Action, there is **No affect** anticipated to listed species from the No-Action Alternative.

4.6 Cultural Resources

4.6.1 Proposed Alternative

The proposed project has been determined to be a Federal undertaking of the type that could affect historic properties and must, therefore, comply with the requirements of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA). Section 106 requires that Federal agencies identify and assess the effects of Federally assisted undertakings on historic properties and to consult with others to find acceptable ways to resolve adverse effects. Properties protected under Section 106 are sites, buildings, structures, or objects included on or eligible for listing on the National Register of Historic Places (NRHP). Eligible properties must generally be at least 50 years old, possess integrity of physical characteristics, and meet at least one of four criteria for significance. Regulations implementing Section 106 (36 CFR Part 800) encourage maximum coordination with the environmental review process required by the National Environmental Policy Act (NEPA) and with other statutes. The Washington State Archaeological Sites and Resources Act (RCW 27.53) may also apply.

The Area of Potential Effects (APE) was defined as the project boundaries, including access roads. Materials used in the repair will come from existing quarries and borrow areas. No sites listed in the NRHP or the Washington State Office of Archaeology and Historic Preservation (OAHP) electronic Historic Property Inventory Database were found to be located within or near the project APE. A professional cultural resources reconnaissance survey of the APE was completed on 27 January 2005 with negative results. Archaeological monitoring was performed on 8 June 2005 for wetland delineation shovel probes that were placed along the access roads and repair area with negative results. The cultural resources investigation did not produce any evidence of Native American prehistoric or historic-period activity within the APE. The 1874 GLO map for the township shows that at that time the area to be repaired consisted of the main Nooksack River channel and a small island. The GLO map shows the “T. Williams” farmstead located north of the repair. The apparently unrecorded farmstead lies adjacent to the east side of the western access road. A view of the western access road from the farmstead appears to be screened by trees and the proposed levee repair appears to have no potential to cause effects to the farmstead.

As required under Section 106 of the NHPA, the Corps is coordinating with the Washington State Historic Preservation Officer (SHPO) and the Nooksack Tribe and Lummi Nation. The

Corps has determined that no historic properties will be affected by the proposed project, but of this date has not received SHPO concurrence with its determination.

4.6.2 No-Action Alternative

In many cases levees protect cultural resources located adjacent and inland of them from river erosion. A breach of this levee could threaten the unrecorded historic-period farmstead located directly north of the repair on the east side of the western access road.

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4.7 Water Quality

4.7.1 Proposed Alternative

Water quality will not be significantly impacted by construction activities. Equipment will not enter the water and would remain on dry ground at all times. During construction, best management practices for equipment operation and storage and use of hazardous materials would be employed. Therefore, no leakage or spills of hazardous materials are expected to occur.

The Nooksack is a high flow, high energy river and carries a turbidity load throughout the year. Any increases in turbidity will be minor and localized to the project site.

According to the Code of Federal Regulations, Title 33, Section 323.4 (a) (2) levee repair is an activity not prohibited by or otherwise subject to regulation under Section 404 of the Clean Water Act. Therefore, a section 401 Water Quality Certification is not required.

4.7.2 No-Action Alternative

It is likely that if the project is not constructed the levee will fail during the upcoming flood season, resulting in an increase in turbidity in the Nooksack River due to levee breaches or bank erosion.

4.8 Air Quality and Noise

4.8.1 Proposed Alternative

Air quality would meet the standards as set forth by the Washington Department of Ecology and would not be permanently affected by the construction of the project. Noise would be intermittent at the site and varied depending on the frequency of trucks arriving with the material and construction of the identified features. Noise disruption factors were considered for their effect on threatened and endangered species in the ESA document.

During construction, there would be temporary and localized reduction in air quality due to emissions from heavy machinery operating during fill placement, and grading. These emissions would not exceed EPA's *de minimis* threshold levels (100 tons/year for carbon monoxide and 50 tons/year for ozone) or affect the implementation of Washington's Clean Air Act implementation plan. Therefore, impacts would not be significant.

Ambient noise levels would increase slightly while construction equipment was operating. However, these effects would be temporary and localized, and occur only during daylight working hours. As a result, impacts are considered insignificant.

4.8.2 No-Action Alternative

No effects anticipated as a result of the No-Action alternative.

4.9 Utilities and Public Services

4.9.1 Proposed Alternative

Failure to repair the levee could have a serious impact on local commercial and private citizens through increased flood damage to homes, agricultural operations, roads, and other commercial and residential infrastructure. Construction vehicles associated with the project would create minimal, temporary disruptions to public services and transportation due to increased truck traffic merging, turning and traveling together with local traffic. Such a disruption would be temporary and highly localized, and therefore impacts are considered insignificant.

4.9.2 No-Action Alternative

The No-Action alternative would not result in an increase in traffic on the local roads, and it would not result in providing the desired flood protection to public infrastructure.

4.10 Land Use

4.10.1 Proposed Alternative

The proposed project will not cause any unique effects or impacts to land use.

4.10.2 No-Action Alternative

No effects anticipated as a result of the No-Action alternative.

4.11 Recreation

4.11.1 Proposed Alternative

Effects to recreation values are insignificant because the site has been in a degraded condition compared with other nearby locations, and is thus not selected for many recreational activities. Recreational resource and value uses are not changed.

4.11.2 No-Action Alternative

No effects anticipated as a result of the No-Action alternative.

4.12 Hazardous, Toxic, and Radioactive Waste

4.12.1 Proposed Alternative

There are no known sites at the project locations that have any hazardous, toxic, or radioactive waste; therefore, the Corps does not anticipate any effect.

4.12.2 No-Action Alternative

No effects anticipated as a result of the No-Action alternative.

4.13 Aesthetics

4.13.1 Proposed Alternative

Restoration of the constructed features of the project will not significantly affect the aesthetics of the site or the river.

4.13.2 No-Action Proposed Alternative Aesthetics

No effects anticipated as a result of the No-Action alternative.

5. UNAVOIDABLE ADVERSE EFFECTS

Unavoidable adverse effects associated with this project include:

- (1) minor temporary increases in river turbidity,
- (2) temporary dislocation of migrating salmon to other parts of the river channel
- (3) a minor, temporary and localized increase in noise, which may disrupt wildlife in the area,
- (4) a minor, temporary and localized disruption of local traffic by construction vehicles

6. COORDINATION

The following agencies and entities have been involved with the environmental coordination of this project:

- Washington Department of Ecology (Ecology)
- NOAA-Fisheries (formerly the National Marine Fisheries Service)
- U.S. Fish and Wildlife Service (USFWS)
- Washington Department of Fish and Wildlife (WDFW)
- The Nooksack Tribe
- The Lummi Tribe
- Washington State Office of Archaeology and Historic Preservation
- Whatcom County

Representatives from NOAA-Fisheries, Whatcom County, the Washington Department of Fish and Wildlife, The Nooksack Tribe and the Corps inspected this site as part of a basin-wide levee repair program inspection on March 9, 2005. NOAA-Fisheries and the Nooksack Tribe provided written comments during the preparation of the Project Information Report. These comments have been addressed in the design and in correspondence to the extent practicable under the PL 84-99 authority.

7. CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this evaluation. Future federal actions would require additional NEPA evaluation at the time of their development.

There are no significant cumulative effects that can be identified from implementation of this project. Because of frequent flooding in the area, the adjacent property is expected to remain agricultural and no development is anticipated in the vicinity of the project. There are no known plans to raise the levees to provide an increased level of flood protection. The levees would continue to be maintained at their current level. The Corps knows of no other actions that are reasonably certain to occur within the action area.

Cumulative impacts from local, short-term disturbances caused by the construction project (noise, emissions, traffic disruptions, etc.) would be minor, temporary and not significant.

8. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The irreversible and irretrievable commitment of resources is the use of materials, resources, or land during implementation of an alternative that makes these resources unavailable for other uses, given known technology and reasonable economics.

Industrial resources required during implementation of the selected alternative included fossil fuels, construction-related materials, as well as labor and capital.

9. ENVIRONMENTAL COMPLIANCE

Table 9.1 summarizes the proposed actions compliance and/or consistency with applicable environmental laws, regulations and Executive Orders.

Table 9.1. Summary of Consistency of Project With Applicable Laws, Regulations and Policies¹

LAWS AND REGULATIONS RELATING TO THE PROPOSED ALTERNATIVES	REQUIREMENT SUMMARIZED	CONSISTENCY OF PREFERRED ALTERNATIVE
National Environmental Policy Act (NEPA) 42 USC 4321 <i>et seq.</i>	Requires all federal agencies to consider the environmental effects of their actions and to seek to minimize negative impacts.	Consistent; Draft document will receive agency and public comment and response.
Clean Air Act 42 USC 7401, <i>et seq.</i>	Requires federal agencies to consult with state air pollution control agencies to assure that construction plans conform with local air quality standards	Consistent
Clean Water Act 33 USC 1251 <i>et seq.</i> (CWA)	Requires federal agencies to protect waters of the United States. Disallows the placement of dredged or fill material into waters (and excavation) unless it can be demonstrated there are no reasonable alternatives. Requires federal agencies to comply with state water quality standards.	Covered by 33 CFR 323.4 (a) 2
Rivers and Harbors Act 33 USC 403	Prohibits the construction of any bridge, dam, dike, or causeway over or in navigable waters of the U.S. in the absence of Congressional consent and approval of the plans by the Chief of Engineers and the Secretary of the Army.	Not in Section 10 jurisdiction
Fish and Wildlife Coordination Act 16 USC 661 <i>et seq.</i>	Requires federal agencies to consult with the US Fish & Wildlife Service on any activity that could affect fish or wildlife.	Not Applicable
Endangered Species Act 16 USC 1531-1544	Requires federal agencies to protect listed species and consult with US Fish & Wildlife or NMFS regarding the proposed action.	Consistent
National Historic Preservation Act 16 USC 470 <i>et seq.</i>	Requires federal agencies to identify and protect historic properties.	Will be completed prior to FONSI
Wild and Scenic Rivers Act 16 USC 1271-1287	Requires that "In all planning for the use and development of water and related land resources, consideration shall be given by all Federal agencies involved to potential national wild, scenic and recreational river areas."	Consistent
Executive Order 11988, Floodplain Management	Requires federal agencies to consider how their activities may encourage future	Consistent

	development in floodplains.	
Migratory Bird Treaty Act and Migratory Bird Conservation Act <i>16 USC 701-715</i>	Requires not harming or harassing migratory birds.	Consistent
Federal Water Project Recreation Act, as Amended <i>16 USC 4612 et seq.</i>	Requires full consideration for fish and wildlife enhancement opportunities when planning Federal water resources projects.	Consistent
Watershed Protection and Flood Prevention Act, as Amended <i>16 USC 1001 et seq.</i>	Authorizes Federal assistance for implementing projects in watershed areas and use of land and water and flood prevention.	Consistent
Farmland Protection Policy Act <i>7 USC 4201</i>	Requires identification of proposed actions that would affect any lands classified as prime and unique farmlands.	Consistent
Resource Conservation and Recovery Act (RCRA) <i>42 USC 6901</i>	Requires managing hazardous materials and waste in accordance with RCRA requirements.	Consistent
Executive Order 11990, Protection of Wetlands	Requires federal agencies to protect wetland habitats.	Consistent
Coastal Zone Management Act (CZMA) <i>16 USC 1451-1465</i>	Requires federal agencies to comply with state and local plans to protect and enhance coastal zones and shorelines.	Consistent to the maximum extent practicable
Washington Hydraulic Code	Requires proponents of developments, etc. to protect state waters, wetlands and fish life.	Not Applicable
Whatcom County Flood Hazard Reduction Plan	Requires implementing projects that would result in innovative, comprehensive and permanent solutions to flooding problems using environmentally sensitive techniques.	Not Applicable

10. CONCLUSION

Based on the above analysis, the levee rehabilitation project is not a major Federal action significantly affecting the quality of the human environment, and therefore does not require preparation of an environmental impact statement.

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13. APPENDICES

Appendix A

Requests for Corps Assistance

**WHATCOM COUNTY
PUBLIC WORKS DEPARTMENT**

JEFFREY M. MONSEN, P.E.
Director



River and Flood Division

322 N. Commercial Street, Suite 120
Bellingham, WA 98225
Phone: (360) 676-6876, (360) 398-1310
Fax: (360) 738-2468

December 15, 2004

Doug Weber
US Army Corps of Engineers
P.O. Box C-3755
4735 E. Marginal Way S.
Seattle, WA 98124-2255

Re: Levee Repair Work in Whatcom County

Dear Mr. Weber:

During the recent flooding in Whatcom County on November 24th, 2004, multiple levees were damaged along the Nooksack River and its tributaries. They include the following:

- The "Williams Levee" - an approximately 100-foot section of this levee located on the left bank of the Nooksack River near Everson was damaged.
- The "Sande-Williams Levee" - an approximately 200-foot section of this levee located on the right bank of the Nooksack River near Deming was damaged.
- The "Right Bank Bertrand Creek Levee" - an approximately 100-foot section of this levee located on the right bank of Bertrand Creek near Ferndale failed.
- The "Hannegan Levee" - an approximately 500-foot section of this levee located on the left bank of the Nooksack River near Lynden was damaged.
- The "Bylsma Levee" - an approximately 500-foot section of this levee located on the left bank of the Nooksack River near Lynden was damaged.
- The "Vanderpol Levee" - the upstream segment of this levee located on the left bank of the Nooksack River near Lynden was damaged.
- The "Twin-View Levee" - a portion of this levee located on the left bank of the Nooksack River near Everson was damaged.

We are officially requesting assistance under the PL84-99 Program in implementing repair projects at these locations. The County will act as the local sponsor and provide all necessary lands, rights-of-way, and easements for these projects.

If you have any questions or need any additional information please don't hesitate to contact me at (360) 676-6876.

Sincerely,

A handwritten signature in dark ink, appearing to read "James E. Lee".

James E. Lee, P.E.
River & Flood Engineer

Appendix B

ESA Consultation Document

NOOKSACK RIVER SANDE-WILLIAMS LEVEE
Rehabilitation of Flood Control Works
Whatcom County, Washington
ESA Consultation Document
July - August 2005

1.0 Introduction

This document evaluates the environmental effects of the proposed repair and reconstruction of Sande-Williams Levee located on the Nooksack River near Deming, Washington. This levee is on the right bank at River Mile 33.0 approximately 700 yards off Williams Road, to the south-southwest of Deming Road. The area is within the historic floodplain of the Nooksack River, and contains several small farms, single-family residences, a log home builder and various small commercial businesses. The levee was previously repaired in June 2004 following a November 2003 temporary repair of a 100-foot breach in the levee, which allowed floodwaters to enter adjacent property. The proposed Corps action in 2005 consists of two (2) 250 linear foot repairs of existing toe and slope, which were damaged in a 24-26 November 2004 flood event. Repairs will consist of three-foot thick class IV riprap placement on the slope to restore the original slope and level of protection; a weighted 6-foot by 12-foot toe will be constructed to replace the toe lost in the 2004 flood. In order to repair the toe, rock will be placed below Ordinary High Water (OHW). The total length of the proposed levee rehabilitation project will be approximately 500 feet and it will be constructed between July 15-August 15.

The project is located on the right bank of the Nooksack River between RM 32.5 and RM 33.9, 700 yards off Williams Road, to the south-southwest of Deming Road, near Deming, Washington, within Whatcom County, Washington at Range 4 East, Township 39 North, Section 35.

The potential impacts to species listed under the Endangered Species Act (ESA) and candidate species as a result of the Nooksack River Sande-Williams Levee Repair project are addressed in this biological assessment. There are three species listed by the U.S. Fish and Wildlife Service (USFWS) under the ESA as threatened; bull trout (*Salvelinus confluentus*), bald eagles (*Haliaeetus leucocephalus*), and marbled murrelet (*Brachyramphus marmoratus*). The National Marine Fisheries Service (NMFS) identified one species under ESA listed as threatened; Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*) as utilizing the proposed project location.

2.0 Effects of the Proposed Action and Effects Determinations

2.1 Chinook salmon

A review of the 2002 update to the Salmonid Stock Inventory (WDFW, 2002; at <http://wdfw.wa.gov/fish/sasi/>) documents Chinook salmon spawning habitat upstream of the project site in the South Fork Nooksack River, North Fork Nooksack River, and at the intersection of the Middle Fork and Mainstem Nooksack River. Informal communication from NOAA Fisheries and the Nooksack Tribe indicate the presence of spawning Chinook on the opposite river bank as the proposed action, however the dynamic nature of the river would likely

prevent any effects from construction to reach the opposite bank in this suspected spawning area. The proposed project **may affect, but is not likely to adversely affect** Chinook salmon or designated critical habitat for this species. The procedure to repair the levee was designed to avoid or minimize potential "take" during construction by constructing during the in-water construction period (June 15-August 15) to avoid periods of greatest Chinook vulnerability and highest expected use. In addition, the incorporation of willow plantings into the design of the project will minimize potential effects to Chinook salmon.

2.2 Bull Trout

Bull trout in the Nooksack River system were identified by the 1998 Washington State Salmonid Stock Inventory as spawning well upstream of the project location. The geographically closest stock is the Lower Nooksack stock, which occurs in the Middle Fork of the river upstream of its intersection with the river mainstem. No bull trout stocks are known to utilize the project area, except for migration along the river corridor. The proposed project **may affect, but is not likely to adversely affect** bull trout. Best management practices to reduce or eliminate the possibility of turbidity during construction will be implemented. This determination is based upon the low likelihood that bull trout would be present in the action area during construction activities and the potential positive benefits attributed to the added salmonid habitat features such as willow plantings.

2.3 Bald Eagles

The project area is approximately 3/4 mile away from the closest nest and the nest is not visible from the project area. The project impacts are not a concern to nesting behavior due to construction timing. WDFW eagle experts have indicated that the young in this nest have typically fledged by the middle of July therefore, the Corps will construct the project between July 15-August 15. Since construction activities will not occur during the nesting season, it will not affect nesting habitat or behaviors. Prey (salmonid) production will likely remain the same, and only minor disruptions to foraging activities are expected during construction. The proposed project **has No Affect** the bald eagle.

2.4 Marbled Murrelet

Marbled murrelets do not nest or feed in the project area. The project site lacks old-growth forest and does not contain suitable marbled murrelet habitat. The project would not occur during marbled murrelet nesting season and would not have a detrimental effect on the species. The proposed project **has No Affect** on the marbled murrelet.

2.5 Essential Fish Habitat

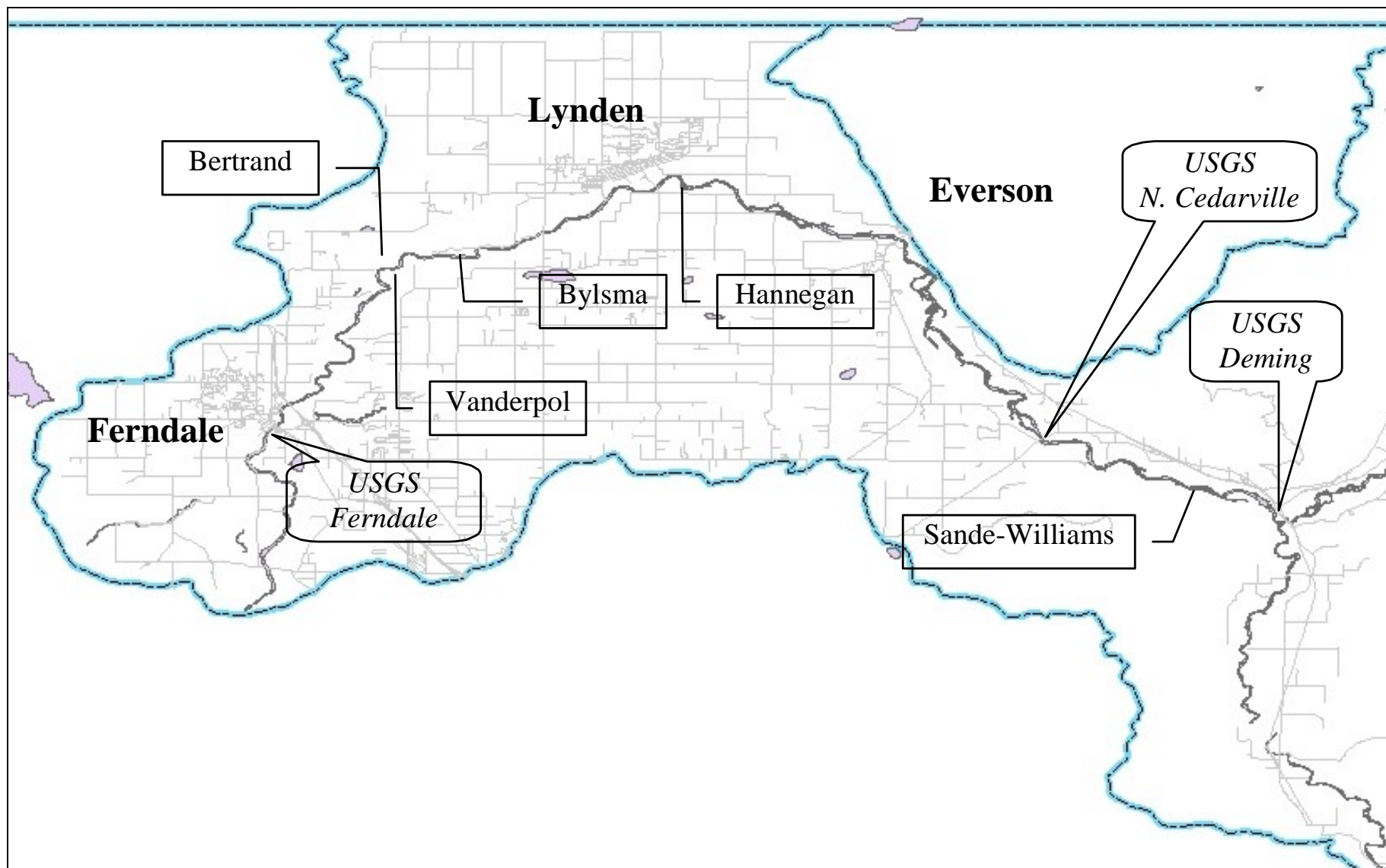
The project area has been designated Essential Fish Habitat (EFH) for various life stages of four species of Pacific salmon. Freshwater EFH for Pacific salmon consists of four major components: (1) spawning and incubation areas; (2) juvenile rearing habitat; (3) juvenile migration corridors; (4) adult migration corridors and adult holding habitat. Important features of essential habitat for spawning, rearing and migration include: (1) substrate composition; (2) water quality, particularly with respect to dissolved oxygen, nutrients and temperature; (3) water quantity, depth and velocity; (4) channel gradient and stability; (5) food; (6) cover and habitat complexity; (7) space; (8) fish access and passage; and (9) flood plain habitat and connectivity.

The Corps has determined that the proposed action will not reduce the quality or quantity of EFH for Pacific salmon. No adverse effects to EFH are expected to result from the proposed action,

as there will no new or additional encroachment into the river channel; no existing riparian vegetation will be removed, and willow whips will be incorporated into the repair design to restore riparian cover.

Appendix C

Proposed Project Drawing





Appendix E

Draft FONSI

REHABILITATION OF FLOOD CONTROL WORKS SANDE-WILLIAMS LEVEE
WHATCOM COUNTY, WASHINGTON

DRAFT FINDING OF NO SIGNIFICANT IMPACT

1. Background. The Seattle District, U.S. Army Corps of Engineers (Corps) is proposing to repair and reconstruct Sande-Williams levee, located on the Nooksack River near Deming, Washington in July and August 2005. The Nooksack River rose above the zero damage flood stage in November 2004, resulting in the loss of armor rock and toe rock along two 250 linear-foot sections of the levee in this area. In December 2004, Whatcom County Public Works Department requested assistance under the PL84-99 Program in implementing a repair project at this location. The Corps has determined that the levee is in need of permanent repair and is proposing to repair two 250 linear-foot sections section of the levee. This levee is on the right bank at approximately River Mile 33.0, approximately 700 yards off Williams Road, to the south-southwest of Deming Road. The levee protects 320 acres of agricultural land, residential properties, and associated public infrastructure, such as roads. The Corps is proposing the following project under the authority of Public Law 84-99 (33 USCA 701n).

2. Purpose of and Need for Action. The purpose of this project is to provide protection to the community and infrastructure from flood damage. This section of the levee sustained significant damage by erosion during a flood event in November 2004 and is in need of permanent repair. There is a high potential that during the upcoming flood season around October, the river would overflow the levee again, posing a major threat to community, if no action is taken to contain the floodwaters.

3. Action. The Corps proposes to permanently repair the section of the levee. The proposed action consists of two 250 linear-foot repairs of existing toe and slope, which were damaged in a 24-26 November 2004 flood event. Repairs will consist of three-foot thick class IV riprap placement on the slope to restore the original slope and level of protection; a weighted 6-foot by 12-foot toe will be constructed to replace the toe lost in the 2004 flood. The project also includes adding willow plantings. The project will be constructed between July 15- August 15

4. Summary of Impacts. The primary impacts of this action will be the temporary and localized increases in turbidity, noise in the construction area and the potential for temporary dislocation of salmonids to other areas of the channel. To minimize the project impacts to vegetation, the project area will be replanted with native willow plantings.

The attached draft environmental assessment provides an evaluation of the proposed levee rehabilitation project and its effects on the existing environment.

No significant adverse impacts to fish and wildlife habitat, air quality, noise, esthetics, historical resources, cultural resources, or the social or economic environment are anticipated as a result of the project.

5. Finding. For the reasons described above, I have determined that the levee rehabilitation project will not result in significant adverse environmental impacts. The project will not

constitute a major Federal action with significant impacts on the environment and, therefore, does not require an environmental impact statement.

Date

Debra M. Lewis
Colonel, Corps of Engineers
District Engineer

HOFFMAN/PM-PL-ER

ZIMINSKE/PM-PL-ER

KOMOROSKE/OD-EM

THOMASON/PM-PL

NELSON/OC

BEVENS/PM/

LEIGHOW/DDE

LEWIS/DE/s/

PM-PL-ER FILE